

CLAIMS

We claim:

1. A automatic deadbolt mechanism comprising:
 - a deadbolt movable between a retracted deadbolt position and an extended
 - 5 deadbolt position, the deadbolt biased in the extended deadbolt position;
 - an auxiliary latch movable between a retracted auxiliary-latch position and an extended auxiliary-latch position, the auxiliary latch biased in the extended auxiliary-latch position; and
 - a trigger biased in a first trigger position and movable between the first trigger
 - 10 position and a second trigger position, the trigger operatively coupled to the deadbolt and to the auxiliary latch, the trigger configured to be in the first trigger position when the auxiliary latch is in the extended auxiliary-latch position and in the second trigger position when the auxiliary latch is in the retracted auxiliary-latch position, to cause a first movement of the deadbolt from the retracted deadbolt position to the extended deadbolt position when the trigger moves from
 - 15 the first trigger position to the second trigger position, and to require movement of the auxiliary latch a predetermined distance from the retracted auxiliary-latch position toward the extended auxiliary-latch position before the trigger is able to cause a second movement of the deadbolt.
2. The mechanism according to claim 1, wherein the mechanism further comprises:
 - a deadbolt holding lever biased in a first deadbolt holding-lever position and
 - 20 pivotable between the first deadbolt holding-lever position and a second deadbolt holding-lever position, the deadbolt holding lever configured to releasably retain the deadbolt in the retracted position when the deadbolt holding lever is in the first deadbolt holding-lever position; and
 - a release lever biased in a first release-lever position and pivotable between the
 - 25 first release-lever position and a second release-lever position, the release lever configured to cause the deadbolt holding lever to pivot from the first deadbolt-holding-lever position toward the second deadbolt-holding-lever position when the release lever pivots from the first release-lever position toward the second release-lever position, and

the trigger is operatively coupled to the release lever and is configured to cause a first pivot of the release lever from the first release-lever position to the second release-lever position when the trigger pivots from the first trigger position to the second trigger position, and to require movement of the auxiliary latch a predetermined distance from the retracted auxiliary-latch position toward the extended auxiliary-latch position before the trigger is able to cause a second pivot of the release lever.

3. The mechanism according to claim 2, wherein the release lever has a trigger-lever engaging arm and the trigger comprises:

an auxiliary-latch lever pivotable between the first trigger position and the second trigger position, the auxiliary-latch lever biased in the first trigger position;

a stop extending from the auxiliary-latch lever; and

a trigger lever pivotably connected to the auxiliary-latch lever, biased in a first trigger-lever position abutting the stop and pivotable between the first trigger-lever position and a second trigger-lever position, the trigger lever having a release-lever engaging end slideably engageable with the trigger-lever engaging arm.

4. The mechanism according to claim 1, wherein the trigger-lever engaging arm has a generally concave edge and the release-lever engaging end is beveled.

5. A method for automatically moving a deadbolt of a mortise lock assembly having an auxiliary latch operatively coupled to the deadbolt, the method comprising the steps of:

retracting the deadbolt from an extended deadbolt position to a retracted deadbolt position;

releasably retaining the deadbolt in the retracted deadbolt position; and

preventing the deadbolt from being released from the retracted deadbolt position until the auxiliary latch has moved a predetermined distance from a retracted auxiliary-latch position toward an extended auxiliary-latch position.

6. The method according to claim 5, further comprising the step of releasing the deadbolt from the retracted deadbolt position when the auxiliary latch moves toward the retracted auxiliary-latch position from at least the predetermined distance from the retracted auxiliary-latch position.

- 5 7. The method according to claim 6, wherein the mortise lock assembly has an auxiliary-latch lever operatively coupled to the auxiliary latch and a trigger lever pivotably attached to the auxiliary-latch lever and operatively coupled to the deadbolt, and the preventing step comprises:

10 pivoting the auxiliary-latch lever from a triggered (or second) auxiliary-latch lever position toward a triggering (or first) auxiliary-latch lever position as the auxiliary latch moves the predetermined distance;

allowing the trigger lever to pivot relative to the auxiliary-latch lever as the auxiliary-latch lever pivots from the triggered (or second) auxiliary-latch lever position toward the triggering (or first) auxiliary-latch lever position; and

- 15 resetting the trigger lever to a triggering position (or first trigger lever position) when the auxiliary latch has moved the predetermined distance.